Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-38. (Cancelled)

39. (Currently Amended) A chamber for conducting repeatable volume measurements, the chamber comprising:

a chamber wall;

a chamber door; and

a dual articulating hinge affixing said chamber door to said chamber wall, wherein said dual articulating hinge ~~facilitates repeatable door closure in the chamber.~~ comprises a first hinge leaf, a second hinge leaf, and at least one spacer, and

wherein said spacer defines a set distance between said first hinge leaf and said second hinge leaf, to repeatedly define a predetermined clearance between said chamber door and said chamber wall in a closed position.

40. (Original) The chamber of claim 39, further comprising:

a gasket affixed about the circumference of said chamber door, said gasket providing a seal between said chamber door and said chamber wall.

41. (Currently Amended) The chamber of claim 39, wherein the dual articulating hinge further comprises:

~~a first hinge leaf;~~

~~a second hinge leaf;~~

a hinge coupling strut;

a first hinge pin for joining said first hinge leaf to said hinge coupling strut at a first hinge; and

a second hinge pin for joining said hinge coupling strut to said second hinge leaf at a second hinge.~~; and,~~

~~a spacer for defining a set distance between said first hinge leaf and said second hinge leaf.~~

42. (Previously Presented) The chamber of claim 41, wherein said hinge further comprises:

a load bearing surface on said second hinge leaf for bearing the load presented at said spacer.

43. (Previously Presented) The chamber of claim 42, wherein said load bearing surface is a roller bearing mounted about said second hinge pin.

44. (Previously Presented) The chamber of claim 42, wherein said hinge further comprises:

a hinge spring; and

a retaining screw passing through the bore of said spring, and mounted to said second hinge leaf.

45. (Original) The chamber of claim 44, wherein the retaining screw compresses said spring in a degree of articulation defined by motion about said second hinge pin.

46. (Previously Presented) The chamber of claim 39, further comprising: a latch for fastening said chamber door to said chamber wall when said door is in a closed position

47. (Original) The chamber of claim 46, wherein said latch is a laterally compliant magnetic latch, comprising:

a magnetic latch face, said latch face including:

a sleeve; and

a roller ball mounted in said sleeve, and capable of rotation within said sleeve;

a magnet housing, said housing including:

an electromagnet;

a planar surface; and

an insert in said planar surface, wherein said insert makes contact with said roller ball when said latch is closed, and wherein the planar surface of said magnet housing and the magnetic latch face form a plane of closure.

48. (Original) The chamber of claim 47, wherein said latch face makes contact with said magnet housing at a point defined by said roller ball and said insert

49. (Currently Amended) A chamber for conducting repeatable volume measurements, the chamber comprising:

a chamber wall;

a chamber door; and

a magnetic latch for fastening said chamber door to said chamber wall when said door is in a closed position,

wherein said magnetic latch comprises at least one roller ball coupled to said chamber wall, and at least one substantially flat magnetic member coupled to said chamber door, and

wherein said roller ball contacts said substantially flat magnetic member in the closed position.

~~said magnetic latch permitting lateral movement of the chamber door with respect to the chamber wall in the closed position.~~

50. (Currently Amended) The chamber of claim 49, wherein said latch further comprises:

a magnetic latch face, said latch face including:

a sleeve~~; and~~, wherein said ~~a~~ roller ball is mounted in said sleeve, and capable of rotation within said sleeve;

a magnet housing, said housing including:

an electromagnet;

a planar surface; and

wherein said substantially flat magnetic member comprises an insert in said planar surface~~, wherein said insert makes contact with said roller ball when said latch is closed, and wherein the planar surface of said magnet housing and the magnetic latch face form a plane of closure~~.

51. (Original) The chamber of claim 50, wherein said latch face makes contact with said magnet housing at a point defined by said roller ball and said insert.

52. (Original) The chamber of claim 49, further comprising:

a gasket affixed about the circumference of said chamber door, said gasket providing a seal between said chamber door and said chamber wall.

53. (Original) The chamber of claim 49, further comprising a hinge affixing said chamber door to said chamber wall, wherein said door can rotate about said hinge.

54. (Previously Presented) The chamber of claim 53, wherein said hinge is a dual articulating hinge, comprising:

a first hinge leaf;

a second hinge leaf;

a hinge coupling strut;

a first hinge pin for joining said first hinge leaf to said hinge coupling strut at a first hinge;

a second hinge pin for joining said hinge coupling strut to said second hinge leaf at a second hinge; and,

a spacer for defining a set distance between said first hinge leaf and said second hinge leaf.

55. (Original) The chamber of claim 54, wherein said hinge further comprises:

a load bearing surface on said second hinge leaf for bearing the load presented at said spacer.

56. (Original) The chamber of claim 55, wherein said load bearing surface is a roller bearing mounted about said second hinge pin.

57. (Original) The chamber of claim 55, wherein said hinge further comprises:

a hinge spring; and

a retaining screw passing through the bore of said spring, and mounted to said second hinge leaf.

58. (Original) The chamber of claim 57, wherein the retaining screw compresses said spring in a degree of articulation defined by motion about said second hinge pin.

59-76. (Cancelled)

77. (New) The chamber of claim 39 wherein the predetermined clearance between said chamber door and said chamber wall is adjustable.

78. (New) The chamber of claim 77 wherein said spacer comprises a bolt having a height that can be adjusted.

79. (New) The chamber of claim 78 further comprising a threaded insert formed in said first hinge leaf, wherein said threaded insert is configured to receive said bolt.

80. (New) The chamber of claim 49 wherein said roller ball rotates to allow movement of said substantially flat magnetic member when said chamber door is in the closed position.

81. (New) The chamber of claim 80 wherein the movement of said substantially flat magnetic member coupled to said chamber door is permitted in any lateral direction, excluding a dimension in which said chamber door would move away from said chamber wall to cause said roller ball to no longer contact said substantially flat magnetic member.

82. (New) A chamber for conducting repeatable volume measurements, the chamber comprising:

a chamber wall;

a chamber door; and

a magnetic latch for fastening said chamber door to said chamber wall when said door is in a closed position,

wherein said magnetic latch comprises at least one roller ball coupled to said chamber door, and at least one substantially flat magnetic member coupled to said chamber wall, and

wherein said roller ball contacts said substantially flat magnetic member in the closed position.